GOREGLYAD, Kh.S.; KORYAZHNOV, V.P.; SHLIPAKOV, Ya.P.; YEMEL'YANOVA, N.I.,
    red.; ZAVARSKIY, A.I., red.; BESKHLEBNOV, Yu.A., red.; USTIMENKO,
    L.F., red.; GOR'KOVA, Z.D., tekhn.red.

[Technology and veterinary inspection of animal products] Veteri-
narno-sanitarnaia ekspertiza s osnovami tekhnologii produktov
zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 355 p.
                                             (MIRA 13:12)

    (Animal products)   (Meat inspection)

GOREGLYAD, Kh.S., akademik; SHIKHALEYEV, N.F.; MORDASOV, P.M., kand.
veterin.nauk; BITYUKOV, P.A., kand.veterin.nauk; BOBKOVA, A.F.,
kand.veterin.nauk; YEGOROV, Yu.O., kand.veterin.nauk

Materials on anaplasmosis acquired from vaccinations in cattle
in the Glusk District of the White Russian U.S.R. Trudy NIVI
1:72-89 '60.   (MIRA 15:10)

1. AN Belorusskoy SSR i Akademiya sel'skokhosyaystvennykh nauk
Belorusskoy SSR (for Goreglyad).
        (Glusk District--Anaplasmosis) (Vaccination)

GOREGLYAD, Kh.S., akademik

     Suitableness of Penicillium mycelium for feeding poultry and
swine.   Trudy NIVI I:232-239 '60.   (MIRA 15:10)

     1. Belorusskoy SSR i Akademiya sel'skokhozyaystvennykh nauk
Belorusskoy SSR.
             (Penicillium) (Feeds)

GOREGLYAD, Kh.S., akademik

Veterinary sanitary evaluation of meat with signs of icteric discoloration. Trudy NIVI 1:286-290 '60.   (MIRA 15:10)

1. AN Belorusskoy SSR i Akademiya sel'skokhozyaystvennykh nauk Belorusskoy SSR.
            (Meat inspction)

GOREGLYAD, Kh.S., akademik; STEPANOVA, M.A., veterinarnyy vrach

Causes for the softening of meat products. Trudy NIVI 1:291-295
'60.   (MIRA 15:10)

1. AN Belorusskoy SSR i Akademii sel'skokhozyaystvennykh nauk
Belorusskoy SSR (for Goreglyad).
                    (Sausages)

GOREGLYAD, Kh.S., akademik; KONEVA, O.I., kand.tekhn.nauk

Veterinary sanitary characteristics of the milk at collective
farm markets in Vitebsk. Trudy NIVI 1:296-300 '60. (MIRA 15:10)

1. AN Belorusskoy SSR i Akademii sel'skokhozyaystvennykh nauk
Belorusskoy SSR (for Goreglyad).
              (Vitebsk--Milk--Analysis and examination)

GOREGLYAD, Kh.S., akademik:

Veterinary sanitary expertise in zoonoses in fish. Trudy NIVI
1:308-315 '60.   (MIRA 15:10)

1. AN Belorusskoy SSR i Akademii sel'skokhozyaystvennykh nauk
Belorusskoy SSR.
          (Zoonoses) (Fishes—Diseases and pests)

YUSKOVETS, M.K., akademik; CHEBOTAREV, R.S., akademik; GOREGLYAD, Kh.S.,
akademik; ROMANENKO, I.N., akademik

Deficiencies in higher education in veterinary medicine and
measures for improving it. Trudy NIVI 1:330-338 '60.
(MIRA 15:10)

(Veterinary medicine—Study and teaching)

GOREGLYAD, Kh.S., prof.; KORYAZHNOV, V.P., prof.

Notes on a review. Veterinariia 37 no.10:87 O '60.

(MIRA 15:4)

(Veterinary hygiene)

GOREGLYAD, KH. S.

"Veterinary-Sanitary Expertise in FishZoonoses"

from Bor'bas Boleznyarni, Obshchimi Dlya Cheloveka i Zhivotnykh (Zoonozy)
Moscow, 1961.

GOREGLYAD, Khariton Stepanovich, akademik; SHUL'GA, K.V., red.;
YERMILOV, V.M., tekhn. red.

[Hygienic inspection of animal and plant products] Vete-
rinarno-sanitarnye issledovaniia produktov zhivotnovodstva i
rastenievodstva. Minsk, Gos.izd-vo sel'khoz.lit-ry BSSR, 1962.
255 p.   (MIRA 15:6)

1. Akademiya nauk Belorusskoy SSR (for Goreglyad).
         (Food adulteration and inspection)

CHEBOTAREV, Roman Semenovich; RATNER, Yuriy Borisovich; GOREGLYAD, Kh.S., akademik, red.; SHUL'GA, K.V., red. izd-va; STOGOVA, I.D., red.-leksikograf; YERMILOV, V.M., tekhn. red.

[Short dictionary of parasitology]Kratkii parazitologicheskii slovar'. Pod obshchei red. Kh.S.Goregliada. Minsk, Gos.izd-vo sel'khoz.lit-ry BSSR, 1962. 320 p.   (MIRA 15:9)

1. Akademiya nauk Belorusskoy SSR (for Goreglyad).
          (Parasitology--Dictionaries)

GOREGLYAD, Kh.S.

Microsporidia infection (plistophorosis) and pond carp (Plistophoros cyprini). Dokl.AN BSSR 6 no.4:270-271 Ap '62. (MIRA 15:4)

1. Belorusskiy nauchno-issledovatel'skiy veterinarnyy institut Ministerstva sel'skogo khozyaystva BSSR.
(White Russia--Microsporidia) (Carp--Diseases and pests)

LUBYANETSKIY, S. (Professor [and Reviewer]). About the book "Expert opinion
on veterinary sanitation with fundamental technology for livestock products,
by GOREGLYAD, Kh. S., KORYASHNOV, V. P. and SHLIPAKOV, Ya. P. Veterinarno-
sanitarnaya ekspertiza s osnovami teknologii productov zhivothovodstva. M.,
Sel'khozgiz, 1960...

Veterinariya, vol. 39, no. 2, February 1962 pp. 85

YUSKOVETS, M.K., akademik, otv. red.; BOBKOVA, A.F., kand. vet.
nauk, red.; GOREGLYAD, Kh.S., akademik, red.; DEMIDOV,
V.A., red.; TUZOVA, R.V., red.; KARKLINA, E., red.

[Controlling losses in animal husbandry; transactions]
Bor'ba s poteriami v zhivotnovodstve; trudy NIVI. Minsk,
Gos. izd-vo sel'khoz. lit-ry BSSR, 1963. 212 p.
(MIRA 17:6)

1. Minsk. Nauchno-issledovatel'skiy veterinarnyy institut.
2. Akademiya nauk Belorusskoy SSR (for Yuskovets, Goreglyad).

CHEBOTAREV, Roman Semenovich; GOREGLYAD, Kh.S., akademik, red.

[Essays on the history of medical and veterinary parasitology;
from the most ancient times until the end of the 19th century]
Ocherki po istorii meditsinskoi i veterinarnoi parazitologii;
s drevneishikh vremen do kontsa XIX v. Minsk, Nauka i tekhni-
ka, 1965. 190 p.   (MIRA 18:5)

1. Akademiya nauk Belorusskoy SSR (for Goreglyad).

L 32617-66   EWT( )   SCTB   JKT/DD/JT/RD

ACC NR: AP6010042   SOURCE CODE: UR/0209/66/000/003/0035/0040

AUTHOR: Goreglyad, L. (Hero of the Soviet Union; Major general of aviation)   64

ORG: none

TITLE: Purveyors of courage

SOURCE: Aviatsiya i kosmonavtika, no. 3, 1966, 35-40

TOPIC TAGS: astronaut training, astronaut training personnel, astronaut training center, COSMONAUT TRAINING, SPACE MEDICINE, SPACECRAFT REENTRY

ABSTRACT: Biographical data are given on several Soviet specialists who work in the Cosmonaut Training Center in Zvezdnyy Gorodok (Stellar Town). These officers, veterans of World War II, are presently in charge of physical training and biomedical preparation of cosmonauts: G. G. Maslennikov is head of the department in charge of all types of cosmonaut training and instruction; N. K. Nikitin - chief instructor in charge of cosmonaut parachute training; G. F. Khlebnikov - physician-scientist involved in the biomedical training of cosmonauts; A. V. Nikitin - a physician; I. P. Vashchenko - radio-engineer, instructor in the operation of spacecraft controls; and Yu. A. Surinov - in charge of the physical fitness of the cosmonauts. Some biographical data on A. Leonov and P. Belyayev, the Voskhod-2 cosmonaut, are also given. It is also mentioned that during reentry of the Voskhod-2, manual controls were used because of a malfunction of the automatic system, causing an overshoot of

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ACC NR: AP6010042

the landing point. While landing, Belyayev controlled the spacecraft in much the same manner as a pilot would control an airplane for landing. Orig. art. has: 1 figure.

[SA]

SUB CODE: 05, 06, 22/ SUBM DATE: none

Card 2/2

GCREK, A.

"Geologic Studies of the Southwestern Slope of the High Tatra." p. 295
(GEOLOGICKY SBORNIK. Vol. 4, No. 1/2, 1953; Bratislava, Czech.)

So; Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 4,
April 1955, Uncl..

GOREK, G.

Manganese deposits of Slovakia. II. Manganese deposits of the Vah Valley. Dimitri Andrusov, Gustav GA Gorek, and Arpold Nemcok (Slovak Univ., Bratislava, Czech.). *Geol. Sbornik* 6, 104-16(1955)(French summary). —Small deposits of Mn oxides occur in irregular lenses and as impregnations in limestones. The deposits appear to be of sedimentary origin. Chem. analyses of 8 ores are given.
Michael Fleischer

③

GOREK, G.

GOREK, G. Geologic structure of the western high tatra. p.125.

Vol. 7, no. 1/2, 1956, GEOLOGICKY SBORNIK, BRATISLAVA, CZECHOSLOVAKIA.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 10,
     Oct. 1956.

MOROZOVA, T.M.; GOREL', F.L.; SALGANIK, R.I.

Study of the reaction of native and denaturated DNA with a
chromophore derivative of nitrogen yperite. Biokhimiia 30
no.1:67-73 Ja-F '65.   (MIRA 18:6)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN
SSSR, Novosibirsk.

GORDON, Ya.Ye.; GOREL', L.F.; DZYUBA, I.P.

Observations of the moon and major planets with the meridian circle
in Nikolaev. Izv.GAO 23 no.1:74-76 '62.   (MIRA 16:12)

GORDON, Ya.Ye.; GOREL', L.F.; DZYUBA, I.P.

Observations of the sun, moon and major planets with the
meridian circle in Nikolayev. Izv. GAO 23 no.4:91-96 '64.
(MIRA 17:9)

GORELAYA, V.

Caro and support for students taking correspondence courses.
Grazhd.av. 18 no.7:14 Jl '61.   (MIRA 14:8)

I. Pomoshchnik nachal'nika aviatsionno-tekhnicheskogo
uchilishcha po zacchnomu obucheniyu, g. Irkutsk
        (Irkutsk--Aeronautics--Study and teaching)

GOBEL'CHIK, I.K.

Pathological fractures of the knee bones following tuberculous meningoencephalitis. Zdrav.Belor. 4 no.3:57 Mr '58.

(MIRA 13:7)

1. Iz Belorusskogo instituta ortopedii i vosstanovitel'noy khirurgii (nauchnyy rukovoditel' - professor B.N. TSypkin, direktor - professor R.M. Minina).

(MENINGES--TUBERCULOSIS)

(EXTREMITIES, LOWER--FRACTURES)

GOREL'CHIK, I.K.

Technic of roentgenological study in injuries of the menisci and
transverse ligaments. Ortop. travm.i protez. 22 no.1:69-71 Ja '61.
                                                (MIRA 14:5)
1. Iz Minskogo nauchno-issledovatel'skogo instituta travmatologii
i ortopedii (dir. - prof. R.M.Minina, nauchnyy rukovoditel' -
prof. B.N.TSypkin)., Adres avtora: Minsk, ul.Lenina, 30, Institut
travmatologii i ortopedii.
                (KNEE—RADIOGRAPHY)

SOSINA, B.M., prof.; GOREL'CHIK, K.I.

Diagnosis of hernias of the esophageal hiatus of the diaphragm.
Zdrav. Bel. 7 no.3:9-14 Mr '61.   (MIRA 14:3)

1. Iz kafedry rentgenologii - radiologii (zaveduyushchiy - prof.
B.M.Sosina) Beloruskogo instituta usovershenstvovaniya vrachey
(direktor - dotsent N.Ye.Savchenko).
                        (HERNIA)

SEDOV, V.V.; SEREBRYAKOV, N.G.; TARASOV, N.F.; GOREL'CHIK, K.I.

Diagnosis of disorders of pulmonary circulation with a suspension
of radioactive gold. Med. rad. 9 no.1:47-49 Ja '64. (MIRA 17:9)

IVANOV, A.Ye.; GOREL'CHIK, K.I. (Moskva)

Behavior of radioactive cerium fluoride (Ce^{144}) in the lungs
following intratracheal introduction. Med. rad. 10 no.7:65-69
Jl '65.   (MIRA 18:9)

OGREL'CHIK, K.I. (Moskva)

Method for intravital study on the removal of gamma radioactive
substances from the lungs. Med. rad. 10 no.7:69-71 Jl '65.
(MIRA 18:9)

ACC NR: AT6036299   SOURCE CODE: UR/3233/66/000/041/0020/0024

AUTHOR: Gorel'chik, V. I.; Farberov, A. I.

ORG: none

TITLE: Recording of near earthquakes at the Avacha seismic station

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut vulkanologii. Byulleten'
vulkanologicheskikh stantsiy, no. 41, 1966, 20-24

TOPIC TAGS: near earthquake, earthquake, seismic wave, recording, earthquake intensity,
seismography

ABSTRACT: To measure the influence of local geologic conditions on the recording
of near earthquakes, records obtained at the Avacha seismic station situated on a
loosely consolidated ground layer were compared with those obtained at the Petro-
pavlovsk station situated on solid rock 27 km away, and at the Verblyud station
situated on extrusive rocks. The Avacha station is located over a Cretaceous
crystalline basement having a density of 2.3 g/cm^3 and an average longitudinal-
wave velocity of 4.0 km/sec. This basement is covered by a 2500-m thick layer of
redeposited pyroclastic material having a density of 2.0 g/cm^3 and a longitudinal-
wave velocity of 2 km/sec. VEGIK seismographs, GB-IV galvanometers, and RS-2 re-
corders were used in the tests. Studies showed that oscillation records at the
Avacha station were distorted as the result of the natural oscillations of the loosely

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ACC NR: AT6036299

consolidated ground layer. The amplitude of the soil-displacement rate at Avacha was 2.6 times greater than that of the extrusive rocks of Verblyud. The intensity of earthquakes recorded at the Avacha station was found to be about 1 scale degree higher than that recorded at the stations located on solid rock. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 006/ ATD PRESS: 5106

Card 2/2

BLANK, Anna Fadeyevna; GORELENKOVA, Fekla Antonovna; RAZBASH, I.Ya.,
    retsenzent; LAUSTEN, A.G., red.; GUSEVA, A.I., red.;
    SHAPENKOVA, T.A., tekhn. red.

[Patternmaking, sewing and designing of women's clothing] Raskroi
poshiv i modelirovanie zhenskogo plat'ia. Izd.4., dop. i perer.
Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1961.   421 p.
                                                    (MIRA 15:1)
                        (Dressmaking)

GORELEYCHENKO, V. K.

Elektricheskoye oborudoyaniye sudov I predriyatiy rechnogo trambforta.
(Electrical equipment of ships and river transport enterprises, by V. K.
Goreleychenko, V. L. Lychkovskiy, (1) Yu,A, Reyngol'dt. Moskva Rechizdat, 1950.

520 P. Tables, Diagrs.

GORELEYCHENKO, A. V.

"Automatic Meteorological Station".
Uch. zap. Vyssh. arkt. mor. uchilishcha im. adm. Makarova, No 5, pp 173-181, 1954.

A description of the design and tests of automatic radiometecrological stations, the first stations in the world which operate without the help of people and which transmit signals at great distances. The stations consist of a main circuit block, radio transmitter, and antenna-mast setup. The amian block supplies electrical energy, rotates the mechanism, and transforms the results of measurements into coded signals. The signals are transmitted by a short-wave radio transmitter set up on one of the two radio masts. The air temperature and wind velocity are measured by means of the impulse method; the wind direction is measured and transmitted by the code-impulse method. Most accurate are the signals on wind velocity; sufficiently accurate are the signals on wind direction. The accuracy of the measurements of the temperature depend upon the constancy of the wind velocity at the moment of measurements. The shortcomings of the station are the lack of protection of the mechanisms in the main block from the corroding action of rain and moisture and the impossibility of operation during winds of less speed than 7-8 meters per second; other shortcomings are the small radius of action and the considerable weight. Tests on the stations were carried out in regions difficult of access: in Franz Josef Land, on the slopes of the Stalin Peak, on the Fedchenko glacier, etc. (RZhGeol, No 7, 1955)

SO: Sum No 884, 9 Apr 1956

GORELEYSHENKO, V. K.; LICHKOVSKIY, V. L. and REYNGOLDT, U. A.

Elektricheskoe Oborudovanie Sudov i Predpriyatii Rechnovo Transporta (Electrical Equipment for Vessels and Enterprizes in River Transport), Moscow-Leningrad, 1950.

TATKO, B., inzhener-elektrik [reviewer]; GORELEYSHENKO, V.K., professor
LYCHKOVSKIY, V.L., professor; REYNGOL'DT, Iu.A., dotsent [authors].

"Electric equipment of vessels and enterprises engaged in river trans-
portation." V.K.Goreleichenko, V.L.Lychkovskii, IU.A.Reingol'dt.
Reviewed by B.Tatko. Mor.i rech.flot 13 no.8:32-33 D '53. (MLRA 6:12)
            (Electricity on ships) (Shipbuilding) (Goreleichenko.V.K.)

GORELEYCHENKO, V.K., prof.; LYCHKOVSKIY, V.L., prof.; REYNGOL'DT, Yu.A., dots., kand. tekhn. nauk; NITUSOV, Ye.V., prof., doktor tekhn. nauk, retsenzent; GOLOVAN, A.T., prof., doktor tekhn. nauk, retsenzent; KRASNOGORODTSIEV, S.A., inzh., red.; VOLCHOK, K.M., tekhn. red.

[Electrical equipment of ships and river transportation enterprises] Elektricheskoe oborudovanie sudov i predpriiatii rechnogo transporta. Leningrad, Izd-vo M-va rechnogo flota SSSR, 1950. 520 p.
(MIRA 14:6)

(Electricity on ships) (Inland water transportation)

GOREL'CHIK, V.I.

Seismological study of the activity of the Karymskiy Volcano.
Biul. vulk. sta. no.36:17-23 '64.

(MIRA 17:9)

L 40714-65   EWT(1)/FCC GW

ACCESSION NR: AT5008979

UR/2789/64/000/057/0019/0023

AUTHOR: Gorelik, A. G.; Kostarev, V. V.; Chernikov, A. A.

TITLE: The coordinate-Doppler method of wind observations

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 57, 1964.
Radiolokatsionnyye metody aerologicheskikh nablyudeniy (Radar methods of aerological
observation), 19-23

TOPIC TAGS: meteorological measurement, wind velocity, atmospheric turbulence,
rawin sonde, Doppler effect, weather balloon

ABSTRACT: Observation of pilot balloons can supply information not only on the
average wind conditions but also information about atmospheric turbulence. How-
ever, the widely used coordinate method for wind observations has several essential
shortcomings, the most important of which is the impossibility of continuous
velocity registration. However, by using the Doppler effect, a method is provided
by which accurate continuous registration of the projection of the probe's
velocity in the direction of the radar beam can be achieved. Tests have shown
that one can achieve a very accurate continuous registration of the projection
of the probe's velocity in the direction of the radar beam by using the Doppler

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ACCESSION NR: AT5008979

effect. Nevertheless, this reading alone (using only one radar station) cannot give the direction in which the pilot balloon is moving. Combining the two methods, the authors were able to devise a new atmosphere-probing method which not only provides average wind velocities but also turbulence parameters at various altitudes. Following a general theoretical derivation of the underlying principles, the authors estimate the accuracy of the method and describe the block-diagram of a device suitable for carrying out the necessary measurement. Orig. art. has 15 formulas and 1 figure.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00   ENCL: 00   SUB CODE: ES

NO REF SOV: 000   OTHER: 000

Card 2/2 pb

ACC NR: AP6030093   SOURCE CODE: UR/0317/66/000/008/0029/0033

AUTHOR: Gorelik, A. (Engineer; Colonel; Doctor of technical sciences)

ORG: none

TITLE: Hydraulic and pneumatic mechanisms

SOURCE: Tekhnika i vooruzheniye, no. 8, 1966, 29-33

TOPIC TAGS: hydraulic device, hydraulic pressure amplifier, pneumatic control system, pneumatic device, pneumatic servomechanism, servomechanism

ABSTRACT: Hydraulic and pneumatic amplifiers and servomechanisms have advantages over other types. They are more reliable, simpler, and more compact, offering high efficiency and increased dynamic properties. Hydraulic amplifiers are used in aircraft control systems, in rocket control and navigation, to control piston-engine propeller pitch, and in jet-engine nozzles. Pneumatic amplifiers operating on compressed gas carried in cylinders are used in rockets, particularly those with short operating times. Orig. art. has: 6 figures.

SUB CODE: 09, 13/ SUBM DATE: none

Card 1/1

L 23135-66   EWT(1)   IJP(c)

ACC NR: AP6001587   SOURCE CODE: UR/0120/65/000/006/0171/0174

AUTHOR: Beskrovnyy, I. M.; Gorelkinskiy, Yu. V.; Pivovarov, S. P.; Chuvashov, R. M.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadernoy fiziki AN KazSSR)

TITLE: Wide-range instrument for measuring intensities of nonuniform magnetic fields

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 171-174

TOPIC TAGS: magnetic field measurement, magnetometer

ABSTRACT: The development of a new wide-range (7—350 oe) magnetometer is reported; an aperiodic circuit with DFPG (α, α -diphenyl β -picrylhydrazyl) inductively or capacitatively coupled with the resonant circuit of a r-f oscillator is used as an EPR-signal sensor. The conventional scheme of EPR spectrometer is employed. The magnetometer permits measuring field intensity with an error of 0.001 at gradients up to 1000% per cm. The error for uniform fields may be reduced to $(2-5) \times 10^{-5}$. The entire range 7—350 oe, or 20—2000 Mc, is covered without changing the sensor. The magnetometer consists of standard Soviet-made instruments and devices. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 17, 09/ SUBM DATE: 05Oct64 / ORIG REF: 002 / OTH REF: 001

Card 1/1 PB   UDC: 621.317.443

L 23839-66   EWT(m)   JD/JW/JG   SOURCE CODE: UR/0241/65/010/007/0065/0069
ACC NR: AP6015255

AUTHOR: Ivanov, A. Ye.—Ivanov, A. B.; Gorel'chik, K. I.—Gorelchik, K. I.

ORG: none

TITLE: Behavior in lungs of radioactive cerium fluoride (Ce sup 144 F sup 3) administered intratracheally

SOURCE: Meditsinskaya radiologiya, v. 10, no. 7, 1965, 65-69

TOPIC TAGS: rabbit, cerium compound, fluoride, radioisotope, biologic respiration

ABSTRACT: $Ce^{144}F^3$ intratracheally introduced is distributed un-evenly in rabbit lungs. Due to physiological characteristics of the organ it is gradually concentrated in the radical zone, there exerting a blastomogenic effect. Decrease in activity of Ce^{144} in the lungs occurs in two phases. The first phase occurs rapidly and in it biological mechanisms of lung purification predominate; the second is developed slowly and is marked by the onset of a degree of equilibrium between elimination of $Ce^{144}F^3$ from the lungs and its radioactive decay. Calculation of absorbed energy in the case of inhalation or intratracheal entry of the radioac-tive compound must necessarily allow for characteristics of its distribution in the lungs. This is especially important in analy-zing the blastomogenic action of radioactive compounds in large animals, and also for theoretical calculations relevant to man. Orig. art. has: 1 figure and 1 table. /JPRS/

SUB CODE: 06 / SUBM DATE: 10Sep64 / ORIG REF: 006 / OTH REF: 004
Card 1/1   UDC: 616-006.04-085.849-059: 615.857.06-07: 616.155.3-008.13

L 23840-66

ACC NR: AP6015256   SOURCE CODE: UR/0241/65/010/007/0069/0071

AUTHOR: Gorel'chik, K. I.--Gorelchik, K. I. (Moscow)

ORG: none

TITLE: Method for intravital study of the elimination of gamma-radioactive compounds from the lungs

SOURCE: Meditsinskaya radiologiya, v. 10, no. 7, 1965, 69-71

TOPIC TAGS: radioisotope, cerium compound, fluoride, rabbit, respiratory system

ABSTRACT: The proposed method of studying elimination of radio-active compounds from the lungs is based on scanning and amounts to the following. All animals after being administered the compounds are subjected to scanning of the thoracic cavity at different periods (from the xiphoid process to the cricoid cartilage). Since the first scanning of the thoracic cavity is carried out immediately after poisoning, the total registration of pulses (with the background subtracted) on these scanograms corresponds to the amount of radioactive compound introduced into the lungs. This amount is taken as 100% for the first scanograms. Given the total number of traces of pulses for each of the subsequent scanograms obtained under standard conditions from the same animal, the percentage content of the isotope in the lungs can be determined after any period following the administration:

$$X = (100 \cdot N_n)/N_c ,$$

UDC: 615.849.7-014.178-032: 611.247-034

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L 23840-66

ACC NR: AP6015256

where N_o = total of pulse traces on first scanogram, N_n = total pulse traces on subsequent scanogram, X = percentage content of activity in lungs at the given moment. This method was used by the author in studying elimination from the lungs of a colloidal solution of radioactive cerium fluoride ($Ce^{144}F_3$) following intratracheal administration of the compound to 60 rabbits. Scanning of the animals was carried out on an experimental scanner under the following conditions: voltage - 950 volts, collimeter diameter - 2.5 cm, rate of data pickup movement 20 cm/sec, distance between traces - 0.5 cm. The results proved to be more precise than when the generally accepted scanning method was used. Orig. art. has: 1 table. /JPRS/

SUB CODE: 06 / SUBM DATE: 07Apr64 / ORIG REF: 001 / OTH REF: 002

Card 2/2

GORELIK, A.

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Electron Defectoscope. A. Gorelik, V. Smirnov and S. Samarin. (Vestnik Metalloprom)shlennosti, 1939, No. 7, pp. 67-70). (In Russian). By designing a magnetic defectoscope for detecting faults in rails, at speeds of 10-25 km. per hr., the authors developed a new instrument for the detection of the local fields resulting from the scattering of the lines of force by defects. The essential part of the instrument is a thermionic valve in which the top of the glass bulb is flattened. The semi-cylindrically shaped anode has its concave surface turned towards the flat top of the glass bulb, the heated cathode wire filament being placed at the axis of the semi-cylindrical anode and as near as possible to the flat surface of the bulb without overheating the glass. The valve is used upside down with the flattened top of the bulb near the surface of the part being examined. When moved along the surface of the part magnetised by means of any suitable D.C. magnetising system, the uniform magnetic field produces a constant effect on the electron stream from the cathode to the anode and consequently on the anode current of the search valve, while local variations in the magnetic field produce sudden changes in the anode current. The output of the search valve is amplified by applying it to the grid of an ordinary amplifying valve, the output of the latter being used to work an indicating

device such as a milliammeter, a sensitive relay or an oscillograph. By adjusting the grid bias of the amplifying valve, the effect of a steady magnetic field on the output of the search valve is neutralised and the indicating device made to work only when a flow causes a sudden change in output. Tests have shown that with this instrument it is possible to detect defects amounting to only a few tenths of one per cent of the total section of the rail. The other advantages of the electron defectoscope are that it is independent of the speed at which it is moved over the object and the ease with which its sensitivity can be varied by adjusting the mode and filament potentials of the search valve.

GORELIK, A

Soviet High-Speed " Defectoscope " for Rails. A. Gorelik, V. Smirnov and S. Samarin. (Vestnik Metallopromyshlennosti, 1939, No. 9, pp. 70-78). (In Russian). A brief description is given of an apparatus called a " defectoscope " which is used for detecting faults in rails. It can be moved over the rails at a speed of 10-25 km. per hr. It incorporates horse-shoe electromagnets, and any local variation in the magnetic field caused by either internal or external defects in the rail head induces currents in a search coil which are amplified and recorded. A wiring diagram of the apparatus is also given.

GORELIK A G

534.213

2

4906.   THE PROBLEM OF INTERACTION OF SOUND WAVES. A.G.Gorelik and V.A.Zverev. Akust. Zh., Vol. 1, No. 4, 339-42 (1955). In Russian.

A method similar to that of I.L.Bershtein can be employed for detecting and studying acoustic wave interaction in fluids. The very small modulation caused by this interaction can be detected but its amplitude and phase can also be determined.

C.R.S.Manders

Gorkiy Phys-Tech Inst, Gorkiy State U

AUTHORS: Gorelik, A. G., Kostarev, V. V.,   50-58-5-2/2o
              Chernikov, A. A.

TITLE: Radar Measurement of Turbulence in Clouds
              (Radiolokatsionnoye izmereniye turbulentnykh dvizheniy
              v oblakakh)

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 5, pp 12-19 (USSR)

ABSTRACT: In recent years the possibility of a further perfection
              of the method and an extension of program of the meteo-
              rological observations by means of these methods of ope-
              ration already   introduced arose. This development
              is possible in 3 directions complementing each other:
              1) Modernization of the usual apparatus according to
              the objects and the requirements of the meteorologists.
              2) Elaboration of a special aerological apparatus.
              3) Determination of data on reflection-sources of sig-
              nals of a meteorological origin. The above-mentioned
              methods in a certain sense are inertia-like. The increase
              in this property can considerably increase the domain of
              employment of these methods in aerology. At the same time
              it is beyond that the inertia-less method, i. e., the ob-
Card 1/4   servations of every impulse separately, can give valuable

additional information on the physical properties of
meteorological phenomena. Observations according to
the last method are described. The measurement mentio-
ned in the title is explained by figure 1. At the output
of the receiver a sequence of impulses of the radio-echo
(Figure 1 v) forms. For the determination of the connec-
tions between the fluctuation amplitudes of the sequence
of reflected signals and the mean square velocity of the
chaotic motions of dispersing particles the authors em-
ploy a theory which was worked out during the investiga-
tion of the statistical nature of the ionosphere (Refe-
rences 1,2). A measuring method of the velocity of the
radio signal expressed in formulae (1) - (15) is consi-
dered inconvenient by the authors. The estimation of the
velocity with regard to orientation is expressed by the
formula:

$$v_s = \frac{n\lambda}{2\Delta T} \quad (17)$$

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The counting of the distinctly marked maxima during the
time of observation and the multiplication with a con-

Radar Measurement of Turbulence in Clouds

50-58-5-2/20

stant coefficient $\dfrac{\lambda}{2\Delta T}$ is sufficient. A block scheme of the measuring device is shown by figure 2. Figure 3 gives recordings of the pulse-sequence. The pulses followed each other at 1/1500 seconds distance. The demands made on the apparatus mainly require that the frequency of the magnetron during the observation may change by a amount which is much smaller than $\dfrac{1}{0}$, that means:

$\Delta f \ll \dfrac{1}{\tau}$. By the investigation of the fluctuation of the signal which is reflected by 2 weakly fluctuating local objects the frequency drop can be estimated. By the above-mentioned method the chaotic motions of the diffusers in different types of clouds and precipitation were investigated in summer and fall 1957. The distribution of the amplitudes of the received signal well agrees with the theoretical data. The not yet numerous results obtained from the work permit some conclusions on the amount

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Radar Measurement of Turbulence in Clouds

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of chaotic agitations in the clouds. The values of v_0 for a vertical column of 150 m brought to an average, lie between 0,1 and 2,0 seconds. The highest values were obtained for thunder-clouds, the lowest ones for the stratus clouds. The method proved to be usable for this purpose.
There are 4 figures and 2 references, 2 of which are Soviet.

1. Clouds--Turbulence   2. Turbulence--Measurement
3. Radar--Performance   4. Meteorology

Card 4/4

GORELIK, A.G.; KOSTAREV, V.V.

Modulation method of increasing the sensitivity of the receiver
of a radar aerological observation station. Trudy TSAO no.20:
36-45 '58.   (MIRA 12:1)
                    (Radar meteorology)

SOV/120-59-1-19/50

AUTHORS: Gorelik, A. G., Kostarev, V. V.

TITLE: Modulation Method of Separating the Weak Pulse Signals
(Modulyatsionnyy metod vydeleniya slabykh impul'snykh signalov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, pp 77-82
(USSR)

ABSTRACT: The authors designed a special storage circuit which per-
mits the improvement in the signal-to-noise ratio at the out-
put of a microwave radar receiver. The principle of operation
of the storage device (Ref 4) is based on the comparison of
the average values of two signals of equal duration. The sig-
nals are taken from the output of the receiver and are in the
form of "segments". The first segment is taken during the in-
terval following the transmission of the sounding pulse and
corresponds to a distance of 0-20 km. The second segment
corresponds to distances of 80 to 100 km. The storage device
(see the block diagram of Fig 1) is synchronized or triggered
by the same pulse which triggers the time base of the radar
equipment. The pulse is applied to the first phantastron cir-
cuit of the device (see the detailed circuit diagram in Fig 2).

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Modulation Method of Separating the Weak Pulse Signals

The delay of the phantastron can be varied continuously from 15-80μs. The phantastron pulses are differentiated and their trailing edges are used to trigger the second phantastron which has a fixed delay; the duration of this delay is equal to half the repetition period of the radar pulses. The trailing edges of the pulses from the second phantastron are used to trigger the blocking oscillator which controls an electronic switch. The signal from the output of the video-amplifier of the radar equipment is applied to the electronic switch. However, the signal is accepted by the integrator which follows the switch only at the instants of the appearance of the control voltage at the switch. The signal at the output of the switch is integrated (the averaging process) and is then applied to a second switch which is controlled by the same pulses as the first switch, except that these are delayed in time by 5μs. The second switch is terminated by a load capacitance which is charged to the full amplitude during the opening of the switch; this voltage is preserved on the capacitor until the succeeding operation of the switch, when it assumes a new value which is equal to the integrated value of the succeeding "segment". The voltage from the second switch is applied to a narrow band amplifier and then to a synchronous detector.

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SOV/120-59-1-19/50

Modulation Method of Separating the Weak Pulse Signals

> If a useful signal exists in the first segments, the output
> voltage of the second switch contains a component having the
> frequency of the transmitted pulses. If this component is
> absent, no useful signal is present. In order to secure an
> averaging time of the order of 1 sec, it is necessary to employ
> a very narrow band amplifier; this can be done by using a syn-
> chronous filter (employing a heterodyne). The circuit of
> Fig 2 has the averaging time, ranging from 1.2 to 2.5 sec. In
> practical applications it was found that when the averaging
> time is 2.5 sec, the gain in the signal-to-noise ratio in com-
> parison with that of a standard radar station was 17 db. The
> improvement secured by using the storage device is illustrated
> in Figs 4, where the lower photograph shows the normal signal,

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SOV/120-59-1-19/50

Modulation Method of Separating the Weak Pulse Signals

while the upper one illustrates the output produced by the storage equipment. The paper contains 5 references, 4 of which are Soviet and 1 is English.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: February 7, 1958.

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D/124/62/000/004/023/030
D251/D301

3,5000

AUTHORS: Gorelik, A. G. and Chernikov, A. A.

TITLE: The study of turbulence in clouds by a radar method

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1962, 122, ab-
             stract 4B739 (Tr. Tsentr. aerol. observ., 1959, no.31,
             53-63)

TEXT: A report is made on a new method of detecting the chaotic
displacements of cloud particles carried by the turbulent motions
of the air within the cloud. The method is based on observation of
the dispersion of the cloud particles (droplets of water and ice-
crystals) by electromagnetic waves aimed at various parts of the
cloud with the aid of an ordinary radar apparatus, of 3 cm range.
/Abstracter's note: Complete translation./

Card 1/1

3(6), .9(9)

AUTHORS: Gorelik, A. G., Kostarev, V. V.   SOV/20-125-1-14/67

TITLE: The Radio Echo of Some Invisible Objects of Troposphere
                (Radioekho nekotorykh nevidimykh ob"yektov troposfery)

ABSTRACT: The dielectric inhomogeneities of the atmosphere caused by
                the gradients of meteorological elements may call forth radar
                signals. However, neither the nature nor the structure of
                the sources of such a radio echo are yet known. Some data
                might be obtained by investigating the characteristics of the
                signals and by comparing them with meteorological conditions.
                For this purpose, a regular radar sounding of the troposphere
                was carried out on the wavelength 3.2 cm at the Tsentral'naya
                aerologicheskaya observatoriya (Central Aerological Observatory)
                from 1956 to 1958. In the course of observations several times
                punctiform sources of a radio echo were detected at altitudes
                up to 7 km. At the same time, no visible objects were detected
                in the atmosphere from the ground and by means of an aerostat.
                Sounding results were recorded by two different methods. The
Card 1/4   vertical distribution of the reflecting objects was recorded

The Radio Echo of Some Invisible Objects of   SOV/20-125-1-14/67
Troposphere

by two different methods. The vertical distribution of the
reflecting objects was recorded according to the inertia
method, whereas the succession of the individual pulses of
radio echo was recorded in order to determine the peculiarities
of the reflected signals. The essential characteristic feature
of radio echo is the degree of reflection of the signal, which
is determined from the depth and from the character of the
envelope of the sequence of reflected signals. If an
individual signal A is originated by superimposition of a
regularly reflected and a disordered signal, it may be
represented in the form

$$A = A_0 \cos \omega_0 t + \sum_1^M a_s \cos(\omega_s t - \varphi_s).$$

A_0 denotes the amplitude of the regular signal, ω_0 the frequency
of the sounding pulse, $\sum_1^M a_s \cos(\omega_s t - \varphi_s)$ the absolute value
of the signal of the inhomogeneities moving in a disordered
manner. $A_0^2 / \sum_1^M a_s^2 = \beta^2$ is the ratio of the mirror component
and of the disordered component of the signal. The degree of
signal reflection and the root mean square velocity of the

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The Radio Echo of Some Invisible Objects of   SOV/20-125-1-14/67
Troposphere

> motions within the reflecting objects were determined according
> to Ya. L. Al'pert's method. The envelope of the pulse sequence
> visible on the oscilloscope screen was photographed and
> evaluated. Two types of the arrangement of signal sources
> were recorded: a disordered pattern and a pattern in the form
> of horizontal or inclined strips. Inclined strips were
> observed but very seldom. The following connections were found
> between radio sounding data and meteorological conditions:
> 1) radio echo signals occur only with high atmospheric humidity
> and heating of the ground. 2) There is an annual and a
> daily periodicity. The signals are observed in the warm season,
> and the number of signals attains a maximum between 13 - 15
> hours. There is usually a layer of inversion over the region
> where radio echo sources frequently occur. 4) The life
> period of the signals of an individual source decreases with
> rising wind velocity. The signal intensity also weakly depends
> on the duration of the sounding pulse of the transmitter.
> The variety of the properties of the signal is probably caused
> by the variety of its internal structure. Radar sounding allows

Card 3/4   the evaluation of the gradient of the dielectric constant, the

The Radio Echo of Some Invisible Objects of   SOV/20-125-1-14/67
Troposphere

determination of the spatial distribution of inhomogeneities
in the troposphere, their evolution with progressing time,
their concentration, etc. There are 2 figures and 5 references,
2 of which are Soviet.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central
Aerological Laboratory)

PRESENTED: November 24, 1958, by M. A. Leontovich, Academician

SUBMITTED: October 28, 1958

Card 4/4

GORELIK, A. G.

Cand Phys-Math Sci - (diss) "Use of statistical characteristics
of radio-location signals for the study of dynamic processes
and microstructure of clouds and precipitation." Moscow, 1961.
8 pp; (Central Aerological Observatory of the Main Board of
Hydro-meteorological Services under the Council of Ministers
USSR, Inst of Atmospheric Physics of the Academy of Sciences
USSR); 125 copies; price not given; (KL, 5-61 sup, 172)

S/194/62/000/007/130/160
D413/D308

AUTHORS: Gorelik, A.G., and Smirnova, G.A.

TITLE: Relation between radar echo fluctuations and the
             microstructure of precipitation

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
             no. 7, 1962, abstract 7-7-132 ts (Tr. Tsentr. aerol.
             observ., no. 36, 1961, 91-101)

TEXT: The authors consider new possibilities of obtaining informa-
tion on the microstructure of precipitations by studying fluctua-
tion spectra of radar echo signals rather than measuring their mean
intensity. They propose an inertia-free statistical radar method for
using the relation between the fluctuation spectrum of echo-signal
magnitude and the random velocities of the scattering particles to
measure the velocity of turbulent motion. The authors give the theo-
retical basis of the new method and consider the theoretical rela-
tion between the magnitude of the effective scattering area of a
meteorological formation and the mean dimensions of a scattering
drop. An experiment is described and the results obtained from it
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Relation between radar echo ...   S/194/62/000/007/130/160
                                         D413/D308

are given. 7 figures, 11 references. [Abstracter's note: Complete
translation.]

Card 2/2

9.9822

S/194/62/000/007/131/160
D413/D308

AUTHORS: Gorelik, A.G., and Mel'nichuk, Yu.V.

TITLE: The relation between the statistical properties of
              radar echoes and the notion of scatterers in clouds
              and precipitation

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
              no. 7, 1962, abstract 7-7-132 yu (Tr. Tsentr. aerol.
              observ, no. 36, 1961, 109 - 117)

TEXT: The paper gives the theoretical basis for a radar method of
determining relative velocities of scattering meteorological ob-
jects, and considers the results of experiments showing good agree-
ment between theoretical and practical data. There is theoretical
justification for the possibility of using radar methods for study-
ing dynamic processes in the atmosphere as well as the microstruc-
ture of precipitation. 4 figures, 9 references. [Abstracter's note:
Complete translation.]

Card 1/1

27259
S/020/61/139/005/011/021
B104/B201

3,5000

AUTHORS: Gorelik, A. G., and Smirnova, G. A.

TITLE: Relationship between fluctuations of radio echo and the
microstructure of precipitations

TEXT: Radar study of the microstructure of precipitations is based on the
measurement of reflectivity from meteorological objects. The fluctuation
spectra of the reflected signal are specially informative, as they are
closely related to the relative velocities of precipitation particles.
In the fall of the latter due to gravitation, a clear relationship exists
between the size of particles and their velocities. In this case, the
fluctuation spectrum has, at the output of a square-law detector, the
form

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Relationship between fluctuations of ...

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B104/B201

$$P(\Delta F) = \frac{\bar{A}^2}{\pi} \int_0^\infty p_1^2(v)\, p\left(v + \frac{\lambda}{2}\Delta F\right) dv,$$

$$p(v) = \frac{|\psi(v)|^2}{[\varphi(v)]^2}\, w(v), \quad \Delta F = \frac{2\Delta v}{\lambda},$$

(1)

Here, $\bar{A}$ is the mean power of the reflected radar beam; v is the projection of the velocities of the precipitation particles onto the beam direction; w(v) is the distribution of the projections of velocities; $\psi(v)$ = r describes the fall of particles; λ is the wavelength of the station; Δ v is the difference between the projections of velocities. If $\psi(v)$ is known, the mean size of particles can be found by (1). For raindrops with diameters ranging between 700 and 4000μ, a diameter distribution of $f(r)dr \sim \exp(-\beta_1 r)dr$, $\beta_1 = n/\bar{r}$ was measured (A. B. Shupyatskiy, Tr. Tsentral'n. aerologich. obs, no. 22 (1957)). According to K. S. Shifrin (Izv. AN SSSR, ser. geofizi, no. 2, 1958)) $r = \psi(v) = v^2/\alpha^2$, where α is a factor. In this case, the fluctuation spectrum can be rendered in the

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S/020/61/139/005/011/021
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Relationship between fluctuations of ...

form $P(\Delta F) \cong \int_0^\infty v^{13} e^{-kv^2}(v+\frac{\lambda}{2}\Delta F)^{13}\exp(-k(v+\frac{\lambda}{2}\Delta F)^2 dv$, where $k=\beta_1/\alpha_1^2$. Thus,

β_1 can be determined from experimental measurements of ΔF, wherefrom $\bar{r}_c$ is then obtained. An analogous investigation can be conducted for drops some ten μ in diameter. Regarding drops of this order of magnitude, distribution with respect to diameters is not known and the following is assumed: $f(r)dr \sim r^2 e^{-\beta_2 r}dr$, with $r=\varphi(v)=v/\alpha_2$ being taken from the work by K. S. Shifrin. Thus, the fluctuation of the radar echo can be written as $P(\Delta F) \cong \int_0^\infty v^8 e^{-kv}(v+\frac{\lambda}{2}\Delta F)^8 \exp(-k(v+\frac{\lambda}{2}\Delta F)dv$, where $k=\beta_2/\alpha_2$.

As the drop size is small compared with the wavelength, reflectivity can be written as $z \cong \int_0^\infty r^6 f(r)dr = \Gamma(9)N_0/\Gamma(3)\beta_6$ if $f(r)dr \sim r^2 e^{-\beta r}$ and N_0 is the number of drops per unit volume. If the particles actually have the distribution indicated by Shifrin, the mean particle size of drops, as Card 3/4

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Relationship between fluctuations of...

determined by the width of the fluctuation spectrum, must coincide with that determined from the magnitude of Z. Measurements performed by the authors show that the diameters established by the two methods agree with an accuracy of 600μ. In general, it will be necessary to use both these methods in the study of the microstructure of precipitations. There are 4 figures and 2 Soviet references.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

PRESENTED: March 31, 1961, by Ye. K. Fedorov, Academician

SUBMITTED: March 31, 1961

Card 4/4

28731

S/020/61/140/003/011/020
B104/B138

L.4700

3.5800

AUTHORS: Gorelik, A. G., and Mel'nichuk, Yu. V.

TITLE: Relationship between the fluctuation spectrum of a radar
             signal and the motion of scatterers in meteorological targets

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961, 579-582

TEXT: Under the supervision of G. S. Gorelik (Ref. 1: Radiotekhn. i
elektronika, no. 6 (1956); Ref. 2: Radiotekhn. i elektronika, no. 10
(1957); Ref. 3: M. I. Rodak, A. Frantsisson, Radiotekhn. i elektronika,
no. 3 (1959)) studies on the fluctuation spectra of reflected radiosignals
have been carried out at the Institut radiotekhniki i elektroniki AN SSSR
Institute of Radio Engineering and Electronics ASUSSR. A method of calculating
the fluctuation spectra of radiowaves reflected from particles with a
definite size distribution is given. When the scatterers lose altitude
due to gravitation, the variables in correlation functions of the scattered
field (Ref. 1) may be replaced by the velocity components $v_i(t)$, where v_i
is the velocity component of the i-th particle in the direction of the

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B104/B138

Relationship between the ...

radiobeam. The correlation function is then

$$\overline{z(t)\,z(t+s)} = N^2 a_i^2 a_j^2 \cos 2k\,(v_i - v_j)\,s =$$

$$= N^2 C^2 \int_0^\infty \int_0^\infty \int_{-\infty}^{+\infty} [\varphi\,(v_{ir})]^2\,[\varphi\,(v_{jr})]^2 \cos 2k\,(v_{ir} - v_{jr} + v_{ir} - v_{jr}) \times \qquad (3),$$

$$\times w\,(v_{ir})\,w\,(v_{jr})\,W\,(v_{ir} - v_{jr})\,dv_{ir}dv_{jr}d\,(v_{ir} - v_{jr}),$$

where s is the time after which the scatterer velocity can be assumed
constant, a_i is the amplitude of the signal from the i-th scatterer,
$w(v_{ri})$ is the distribution function of the v_i, $W(v_{iT}-v_{jT}) = W(\Delta v)$ is the
distribution function of the relative velocity of particle transfer by an
air current. The fluctuation spectrum obtained with this correlation
function is

$$G(F) = \frac{\overline{A}^2}{2\pi} \int_{-\infty}^{+\infty} W(\Delta v)\left\{P(\tfrac{\lambda}{2}F - \Delta v) + P(\tfrac{\lambda}{2}F + \Delta v)\right\}d\Delta v \quad (4). \quad P(\Delta v) = \int_0^\infty p(v)\,p(v + \Delta v)\,dv$$

is the distribution of the projections of the relative sinking velocities
of the particles in the beam direction allowing for radar reflection. The

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B104/B138

intensity fluctuation spectrum of the scattered field is, according to
Eq. (4), determined by the projection of the relative velocity distribution
of scatterers in the beam direction, even when the particle transfer is
determined by several factors. The fluctuation spectrum $G(F)$ is discussed
for two special cases when: (1) The particles sink under gravitation
without any air current. (2) The effect of gravitation is negligible. The
fluctuation spectrum has in both cases the same shape as the projection of
the relative velocity distribution in the beam direction. The fluctuation
spectrum of two different kinds of particles (water drops and snow flakes)
is studied. The method presented makes it possible to obtain information
on the relative and absolute velocities of the scatterers. These conclu-
sions were checked with a 3 cm radar set and satisfactory agreement was
obtained. Detailed results and conditions of the experiments are not given.
There are 2 figures and 3 Soviet references.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central
               Aerological Observatory)

PRESENTED: March 31, 1961, by Ye. K. Fedorov, Academician

SUBMITTED: March 31, 1961
Card 3/3

GORELIK, A.G.; KOSTAREV, V.V.; CHERNIKOV, A.A.

New possibilities for wind measurement by radar. Meteor. i
gidrol. no.7:34-39 Jl '62.   (MIRA 15:6)
                        (Radar meteorology) (Winds)

S/789/62/000/039/001/001

AUTHORS: Gorelik, A. G., Mel'nichuk, Yu. V.

TITLE: Radar investigations of the inhomogeneities of the wind field and
          turbulence of the atmosphere

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy. no.39. Moscow,
          1962. Fizika oblakov. 110 - 117

TEXT: The effect of the inhomogeneity of the wind field and of the atmos-
pheric turbulence on the spectrum of radar-signal fluctuations are indicated.
Previously derived relations by the authors (Trudy TsAO, no. 31, 1959 and no.
36, 1961) between the cahracteristics of the radar signal fluctuations and
the distirbution of the velocity difference of the scattering volumes are
used to derive relations between the half-width of the fluctuation spectrum
and parameters such as the average rate of energy dissipation in different
cloud formations, the wind velocity gradient at different altitudes in the
presence of heavy clouds or precipitation, and other data. It is shown that
the wind velocity gradient has a maximum effect on the width of the fluctu-
ation spectrum when the sind direction and the radar sounding direction

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Radar investigations of the inhomogeneities...   S/789/62/000/039/001/001

coincide, and has no effect on the radio-echo fluctuations when the angle between them is 90°. The effect of the geometry of the scattering volume on the width of the spectrum is also indicated. An experimental procedure is developed for verifying the results of the analysis, and data obtained simultaneously by radar and pilot-balloon methods are compared, although it is pointed out that agreement between the two is hardly expected because of the different altitude regions over which the corresponding data are averaged. The question of separating the effect of turbulent motion and of turbulent mixing from all other factors affecting signal fluctuations is discussed, and the estimate obtained for the energy dissipation in some cloud formations is compared with that of Saffman and Turner (J. Fluid. Mech. 1956, no. 1). There are 2 figures and 2 tables.

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GORELIK, A. G.

3

AID Nr. 981-3   3 June

CONFERENCE AT CENTRAL AEROLOGICAL OBSERVATORY (USSR)

Meteorologiya i gidrologiya, no. 3, 1963, 60.   S/050/63/000/004/002/002

The following are among the reports presented at a recent session of the
Scientific Council of the Central Aerological Observatory: 1) N. Z. Pinus --
an experimental investigation of the wind field at altitudes of 7 to 11 km,
certain peculiarities of the mesostructure of the wind field, and the statisti-
cal characteristics of horizontal and vertical wind fluctuations in the jet
stream zone in different regions of the European USSR and Siberia; 2) S. M.
Shmeter -- the process of cumulonimbus cloud development and a proposed
model of the structure of the fields of meteorological elements near the up-
per third of such clouds at different stages of development; 3) V. D. Reshetov --
the use of hydrodynamic equations for determining the interdependence of
ageostrophic, nonstatic, and nonstationary atmospheric motions and a more

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AID Nr. 981-3   3 June

CONFERENCE AT CENTRAL AEROLOGICAL (Cont'd)   s/050/63/000/004/002/002

accurate form proposed for writing such equations; 4) I. F. Kvaratskhcliya --
conditiohs for the formation of sharp changes of vertical wind shear in the
upper half of the troposphere over the Transcaucasus; 5) A. I. Ivanovskiy
and A. I. Repnev -- the hydrodynamics of the upper atmosphere, taking into
account the chemical reactions occurring under solar influence; 6) V. V.
Kostarev, A. M. Borovikov, and A. B. Shupyatskiy -- certain radar criteria
for identifying the hail content of clouds and criteria for evaluating the effect
of cloud modification; and 7) A. G. Gorelik -- certain results of radar inves-
tigations of the wind field at altitudes of 50 to 700 m.   [ET]

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ACCESSION NR: AR4015470   S/0169/63/000/012/B018/B018

SOURCE: RZh. Geofizika, Abs. 12B114

AUTHOR: Gorelik, A. G.; Mel'nichuk, Yu. V.; Chernikov, A. A.

TITLE: Relation of the statistical characteristics of a radar signal to the dynamic processes and microstructure of meteorological objects

CITED SOURCE: Tr. Tsentr. aerol. observ., vy*p. 48, 1963, 3-55

TOPIC TAGS: weather radar, statistical radar method, energy-dissipation rate, radar signal spectrum, gradient wind velocity, drop size distribution, precipitation intensity, wind velocity, wind observations, precipitation

TRANSLATION: The article is concerned with a statistical radar method. A complete theory of the method is given and the possibilities are indicated for radar measurements of wind velocity and the microcharacteristics of precipitations. Computation formulas are given according to which it is possible, from the spectrum of the radar signal, to determine the mean energy-dissipitation rate ($\mathcal{E}$) in a turbulent flow, the gradient of wind velocity, the drop-distribution according to size, etc. A description of the apparatus and the observational procedure is given. The results

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of observations in different types of clouds, for which values of $\mathcal{E}$ are computed, and also the results of wind observations are given. The possibility of separating direction pulsations from pulsations for wind velocity is shown. Also presented are the results of radar measurements of the drop-size distribution, precipitation intensity, etc. A means for the further development of statistical radar methods is described. Authors' resume.

DATE ACQ: 09Jan64   SUB CODE: AS, PH   ENCL: 00

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ACCESSION NR: AT4033564   S/2922/63/009/000/0145/0153

AUTHOR: Gorelik, A. G.; Kostarev, V. V.; Potemkin, I. G.; Chernikov, A. A.

TITLE: Increasing the sensitivity of the receiver of an aerological radar set

SOURCE: Vsesoyuznoye nauchnoye meteorologicheskoye soveshchaniye. 1st, Leningrad, 1961. Pribory* i metody* nablyudeniy (Instruments and methods of observation); trudy* soveshchaniya, v. 9, Leningrad, Gidrometeoizdat, 1963, 145-153

TOPIC TAGS: meteorology, aerology, meteorological instrument, meteorological radar, signal-to-noise ratio, radar sensitivity

ABSTRACT: The use of ordinary radar apparatus in aerology for observation of many meteorological objects is impossible because of inadequate sensitivity. The signal reflected from the object often is so weak that it is lost in the instrument noise. The authors therefore have devised a signal accumulator which improves the signal-to-noise ratio at the output of the receiver of an ordinary centimeter-range radar set. The signal accumulator makes it possible to detect a weak radar echo, determine the coordinates of its source and obtain data on the strength of the reflected signal. A simplified block diagram of the detection of a weak signal by use of this device is shown in Fig. 1 of the Enclosure. The amplitude characteristics and gain of the signal accumulator are described. A very detailed

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ACCESSION NR: AT4033564

circuit diagram accompanies a text which fully describes the components and opera-
tion of the device. Orig. art. has: 18 formulas and 4 figures.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological
Observatory)

SUBMITTED: 00   DATE ACQ: 16Apr64   ENCL: 01,

SUB CODE: ES, EC   NO REF SOV: 003   OTHER: 000

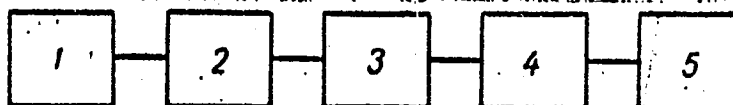Card 2/3

Fig. 1. Simplified block diagram for the detection of a faint signal.
1 - radar receiver; 2 - selector stages of signal accumulation device;
3 - Integrator; 4 - shaping device; 5 - averaging device, employing quartz filter.

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ACCESSION NR: AT4033565   S/2922/63/009/000/0161/0166

AUTHOR: Gorelik, A. G.

TITLE: Apparatus for study of the statistical characteristics of a radar-echo

SOURCE: Vsesoyuznoye nauchnoye meteorologicheskoye soveshchaniye. Ist, Leningrad, 1961. Pribory* i metody* nablyudenly (Instruments and methods of observation); trudy* soveshchaniya, v. 9. Leningrad, Gidrometeoizdat, 1963, 161-166

TOPIC TAGS: meteorology, meteorological radar, radar

ABSTRACT: A detailed description of the radar set and radar method developed by the TsAO (Central Aerological Observatory) is available elsewhere (Trudy VNMS, Vol. V, 1963). Development of this apparatus and method required that certain auxiliary devices be devised for performing a number of transformations of the radar signal. In order to determine the relative velocities of the scatterers it was necessary to have a new electronic device which would ensure the discrimination of the radar echo signal from the interfering signals of other reflecting objects and which would transform the signal to a form convenient for recording by a loop oscillograph, photographing from an oscillograph screen or for spectral analysis by a spectrum analyzer. Such a selector was developed on the basis of the signal accumulation system used earlier in meteorological instruments (A. G. Gorelik and V. V. Kostarev,
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ACCESSION NR: AT4033565

Pribory i tekhnika eksperimenta, No. 1, 1956). This article shows a block diagram of the instrument with 17 components identified in the text; operation is described in detail. The instrument can be used simultaneously with three different radar sets; it consists of four principal units: a single channel unit; a control channel unit; a heterodyne spectrum analyzer; and an apparatus for recording the mean signal level. Orig. art. has: 4 figures.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00

SUB CODE: NO

DATE ACQ: 16Apr64

NO REF SOV: 003

ENCL: 00

OTHER: 000

Card 2/2

ACCESSION NR: AT4036014   S/2789/63/000/048/0003/0055

AUTHOR: Gorelik, A. G.; Mel'nichuk, Yu. V.; Chernikov, A. A.

TITLE: Relationship between the statistical characteristics of a radar signal and the dynamic processes and microstructure of a meteorological object

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 48, 1963. Novy*ye vozmozhnosti meteorologicheskogo primeneniya radiolokatsii (New possibilities for meteorological use of radar), 3-55

TOPIC TAGS: meteorology, meteorological radar, wind, wind velocity, wind direction, atmospheric turbulence, meteorological instrument, precipitation, cloud

ABSTRACT: A description of the statistical meteorological radar method is given. The full theory of the method is described and it is shown that the radar method can be used to measure wind velocity and the microcharacteristics of precipitation. Formulas are given for use with the radar signal spectrum for determining the mean rate of energy distribution (ε) in a turbulent flux, the wind velocity gradient, drop-size distribution, and other parameters. Instruments and observation methods are described. Results are given for observations in clouds of different genera for which the values ε have been computed. The results of wind observations are described and it is shown that

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ACCESSION NR: AT4036014

wind direction fluctuations can be separated from wind velocity fluctuations. The paper is divided into the following parts: Introduction. Chapter I. Theory of the method. No. 1. Total entrainment of particles by the air flow. No. 2. Gravitational falling of particles (in the absence of air currents). No. 3. General case of scattering of radio waves on particles entrained by the air flow with allowance for differences in the gravitational rates of falling. No. 4. Scattering of radio waves on particles of unlike properties. No. 5. Measurement of absolute velocities of movement of scatterers. Chapter II. Influence of meteorological factors on the statistical characteristics of the radar signal. No. 1. Determination of certain parameters of turbulent movement. No. 2. Influence of nonhomogeneity of the wind field on the width of the fluctuation spectrum. No. 3. Influence of the constant velocity of movement of particles on the radar echo fluctuation spectrum. No. 4. Relationship between the microcharacteristics of precipitation and fluctuations of the radar signal. Chapter III. Formulation of the experiment and instruments. No. 1. Principle of measurements. No. 2. Instruments. No. 3. Accuracy of the method. Chapter IV. Experimental results and their discussion. No. 1. Relative movement in different meteorological objects. No. 2. Influence of the gravitational velocities of falling of particles on the radar signal fluctuation spectrum. No. 3. The vertical cloud profile method and certain results. No. 4. Determination of gradient, shear and mean rate of energy dissipation from the radar signal fluctuation spectrum. No. 5. Determination of the microcharacteristics of precipitation

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ACCESSION NR: AT4036014

from the radar echo fluctuation spectrum. No. 6. Study of dynamic processes in thunderstorms. Conclusion. "The authors thank V. V. Kostarev for sustained interest and valuable advice which facilitated this investigation". Orig. art. has: 108 formulas, 24 figures and 3 tables.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

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SUB CODE: ES, DC   NO REF SOV: 025   OTHER: 013

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ACCESSION NR: AT4036016   S/2789/63/000/048/0098/0105

AUTHOR: Gorelik, A. G. ; Smirnova, G. A.

TITLE: Relationship between water content and intensity of precipitation and the radar reflectivity of a meteorological object for different drop-size distribution parameters

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 48, 1963. Novy*ye vozmozhnosti metcorologicheskogo primeneniya radiolokatsii (New possibilities for meteorological use of radar), 98-105

TOPIC TAGS: meteorology, precipitation intensity, rain water content, radar reflectivity, drop size, drop size distribution, weather forecasting, weather radar

ABSTRACT: A study has been made of the theoretical relationships between radar reflectivity and the liquid-water content and intensity of precipitation for different drop-size distribution parameters. It has been shown that the drop-size distribution is approximated satisfactorily by a function of the form

$$n(d)\, dd \approx d^\alpha e^{-\beta d}\, dd,$$ (1)

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where d is the drop diameter, n(d) is the density distribution, and b and β are distribution parameters. In certain studies on this problem the following formula has been used for drop-size distribution

$$n(d)\,dd \sim e^{-b_1 d}. \qquad (2)$$

In the Marshall-Palmer distribution, the coefficient $\beta_1 = \dfrac{3.67d}{d_0}$. On the basis of this dependence, Atlas and Chmela (Proceedings of the Sixth Weather Radar Conference, 1957) derived relationships between radar reflectivity and the liquid-water content and precipitation intensity. In this paper similar relationships are derived, but for a more general case, when the drop-size distribution has the form (1). The theoretical relationships derived make it possible to use radar reflectivity to determine the liquid-water content and precipitation intensity for any drop-size distribution parameters, provided the number of drops per unit volume is known. The number (concentration) of drops in a scattering volume can be computed using a formula supplied by the authors, provided radar reflectivity is measured simultaneously with the drop-size distribution. Orig. art. has: 27 formulas, 4 figures, and 2 tables.

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ACCESSION NR: AT4036016

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00

SUB CODE: ES, DC

ATD PRESS: 3076

NO REF SOV: 001

ENCL: 00

OTHER: 003

Card 3/3

SHAKHOVA, N.A.; GORELIK, A.G.

Infrared heating and drying of granular material in a fluidized
bed. Inzh.-fiz. zhur. 7 no.5:3-10 My '64.   (MIRA 17:6)

1. Institut khimicheskogo mashinostroyeniya, Moskva.

L 129:9-55   WFO-2/EWT(1)/FCC/EEC(t)/EWD-2   Pm-4/Pn-4/Pac-4/Pi-4/Pj-4/

ACCESSION NR: AT5006915

AUTHOR: Gorelik, A. G., Chernikov, A. A.

TITLE: Some results of a radar investigation of the wind field structure at heights of 50 - 700 meters

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 57, 1965. Radiolokatsionnyye metody aerologicheskikh nablyudeniy (Radar methods of aerological observation), 3-18

TOPIC TAGS: wind measurement, radar probe, meteorological, Doppler effect, weather

ABSTRACT: The authors note that studies conducted in connection with the structure of the wind field in the free atmosphere. The primary purpose of a ... carried out during the summer ... reported ... elaboration of methods for measuring ... was not only the initial ... various altitudes

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I. 4291 9-65

ACCESSION NR: AT5008978

collation of a body of experimental data relating to various met
situations. This ma   possible to derive mean expressions
ty, wind pulsation, and energy dissipation rates as functions of
turn this provided a basis for comparing the results of the observations with
...

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ACCESSION NR

Card   3/3

GORELIK, A.G., kand. fiz.-matem. nauk; KOSTAREV, V.V., kand. tekhn. nauk;
CHERNIKOV, A.A., kand. fiz.-matem. nauk

Coordinate and Doppler method of wind observations and some
results of studying the heterogeneities of the wind field in
the atmosphere. Meteor. i gidrol. no.10:12-20 O '65.
                                                  (MIRA 18:9)

1. TSentral'naya aerologicheskaya observatoriya.

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ACCESSION NR: AP5022923   UR/0362/65/001/009/0989/0991
                                                  551.551.5

AUTHOR: Gorelik, A. G.

TITLE: Simultaneous measurements of Lagrange and Euler degrees of turbulence from precipitation in the form of snow

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 9, 1965, 989-991

TOPIC TAGS: atmospheric turbulence, wind, wind direction, wind velocity, atmospheric precipitation, Lagrange equation, Euler equation, radar

ABSTRACT: An improved technique has been developed for determining the correlation between the Lagrange and the Euler turbulence parameters in the atmosphere. In this work a radar antenna is faced into the wind, and the pulsations in the wind velocity are recorded for the highest altitude at which these pulsations occur (see Fig. 1 of the Enclosure). The length (t) of the record is taken as $t = 2L \cos \beta / V$, where L is the distance from the radar to the area of scattering (falling snow), β is the tilt of the antenna away from the horizontal, and $\bar{V}$ is the average wind velocity in the observation period. The antenna is then rapidly rotated through 180°. In this position t is taken as somewhat longer than in the previous case. The data obtained

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